St. Louis River Beneficial Use Impairments

Restrictions on Fish & Wildlife Consumption:
Both Minnesota and Wisconsin issue fish consumption advisories for Lake Superior and the St. Louis River. These are based on mercury and polychlorinated biphenyls (PCBs). There are no consumption advisories for wildlife.

Please note: Since fish advisories change year to year, the Minnesota Fish Advisory EXIT disclaimer should be consulted for restrictions and advisories.

Degradation of Fish & Wildlife Populations:
Prior to 1979, organic pollution resulted in low levels of dissolved oxygen, which caused fish kills and degraded fish populations; this was remedied by improvements in wastewater treatment. Remaining threats include competition from exotic species (ruffe, etc.), continued loss of physical habitat and possible effects of toxic substances. Fish tissue residues of mercury and PCBs exceed the .5 mg/kg and .1 mg/kg standards established in the 1978 Great Lakes Water Quality Agreement for the protection of aquatic life and fish eating birds.

Fish Tumors or Other Deformities:
Observations suggest that this is an impaired use, but there is no information on incidence rates of these problems.

Degradation of Benthos:
This was documented in 1989-91 at the Stryker Bay/Interlake Superfund site in Duluth (with reduced numbers and diversity), in Newton Creek/Hog Island Inlet in Superior (with sediment samples that were toxic to benthic organisms), in a 1994 sediment quality survey of the harbor (www.pca.state.mn.us/water/sediments/94mudpuppy.pdf), EXIT disclaimer and in a Regional Environmental Monitoring and Assessment Program (R-EMAP) project in the AOC. (www.pca.state.mn.us/water/sediments/studies-stlouis.html#assessment) EXIT disclaimer

Restrictions on Dredging Activities:
Sediments in many parts of the AOC contain elevated levels of a variety of toxic, bio-accumulative contaminants that can cause adverse effects. Dredging restrictions and containment of contaminated sediment have serious economic consequences. The confined disposal facility (CDF) for contaminated sediments (Erie Pier) is near its storage capacity; local interests are trying to develop creative alternatives to the construction of a new CDF.

Eutrophication or Undesirable Algae:
For the St. Louis River, the Eutrophication beneficial use impairment IJC criterion has been adapted to fit local conditions. The high nutrient and sediment levels in the St. Louis Estuary lead to excessive loadings to Lake Superior, although these high nutrient levels do not seem to be expressed as eutrophication. Thus, a better way to cite this BUI for the St. Louis River would be "Excessive Nutrient Loading to Lake Superior" instead of "Eutrophication or Undesirable Algae".

Prior to 1979's improvements in wastewater treatment, the estuary was eutrophic. Although phosphorus levels remain high, algae is not a problem. Its growth is probably kept in check by limited light penetration due to red clay turbidity and a brown water color. Although algae is not a problem, high sedimentation rates and phosphorus levels indicate possible impacts on Lake Superior.

Beach Closings
Bacterial contamination levels have improved since 1979, but storm-related sewage bypasses

still occur in both Minnesota and Wisconsin. For this reason, body contact recreation is considered impaired.

Degradation of Aesthetics:
Aesthetics are degraded by oil slicks and odors that occur in Hog Island Inlet in Superior and in Stryker Bay (at the Interlake/Duluth Tar Superfund site) in Duluth.

Loss of Fish and Wildlife Habitat:
Habitat loss and degradation have been caused by filling, dredging, sedimentation, contamination, exotic species and, prior to 1979, water quality. Habitat losses include the filling of 1,215 ha of open water and wetlands, and the dredging of other shallow areas to obtain fill material or create commercial shipping channels. Wetland habitat is being degraded by infestations of purple loosestrife. Habitat has also been degraded by sedimentation, which limits the growth of aquatic plants, and by contamination of sediments, as has occurred in Newton Creek/Hog Island Inlet and Stryker Bay.

Beneficial Uses for which impairment is unclear:

Tainting of Fish & Wildlife Flavor:
Prior to 1979's improvements in wastewater treatment, fish tainting was a problem. A 1980's study suggested that fish from up-river had a better flavor than those from near the WLSSD's mixing zone. However, no instances have been documented in recent years.

Bird or Animal Deformities or Reproductive Problems:
Although common terns are considered threatened in Minnesota and endangered in Wisconsin, their limited reproductive success is believed to be due to habitat loss, predation and nest-site competition rather than pollution. However, it may be worthwhile to monitor frogs in the AOC; in both Minnesota and Wisconsin, a number of sites have had a high incidence of malformed frogs.